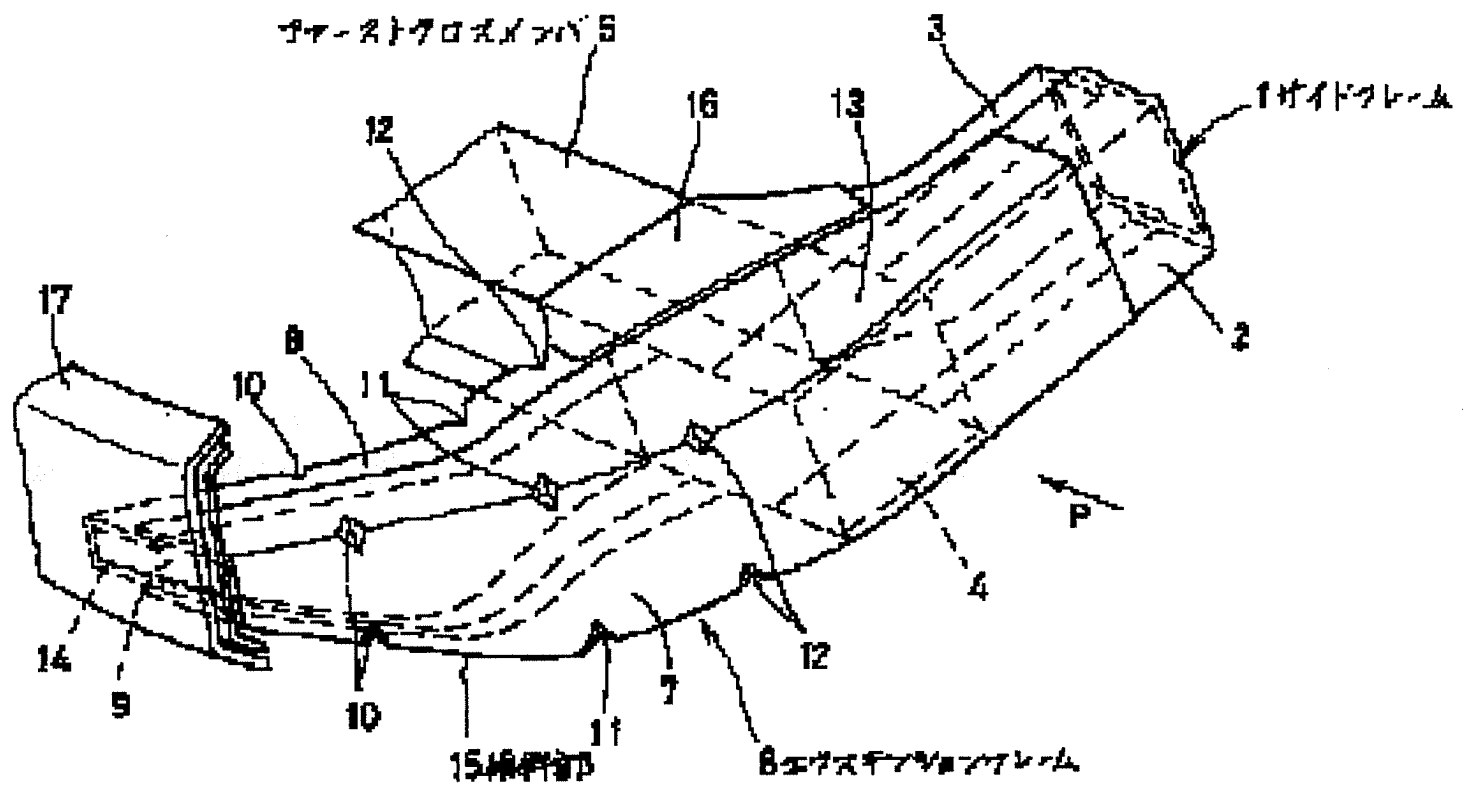


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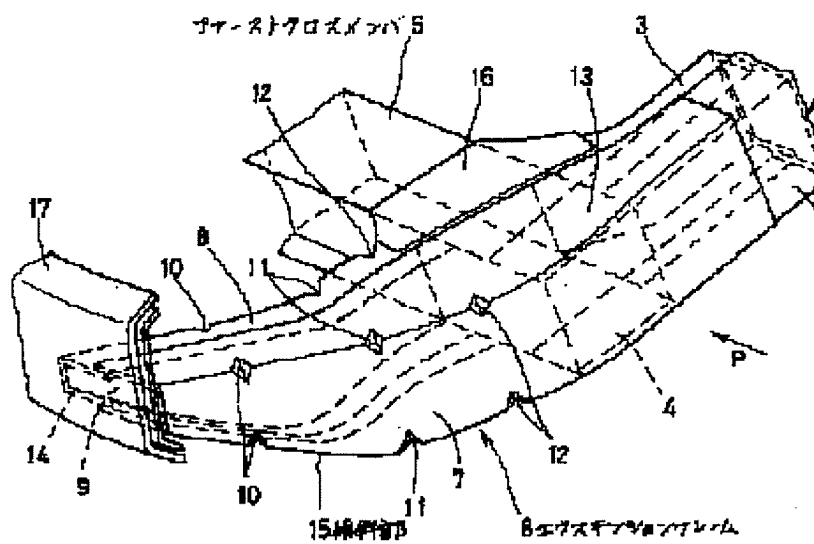
**(54) FRONT FRAME
STRUCTURE OF VEHICLE
BODY**

(57) Abstract:

PURPOSE: To provide front frame structure for a vehicle body which efficiently and fully absorbs impact energy in frontal collision so as to ease impact on an occupant.

CONSTITUTION: A rear end of an extension frame 6 extending in the front part of a vehicle body is connected to a side end of a first cross member 5. The extension frame 6 is approximately horizontal and has a closed section 9 formed by connecting an extension frame outer 7 and an extension frame inner 8 of both U-shape section. A front rising inclination part is provided over from the second bead 11 to the front end 14 under the extension frame 6 so that the extension frame 6 is formed tapered off to the end from the second bead to the front end 14.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the anterior part frame structure of the car body which absorbs the energy at the time of a front collision in the car-body anterior part.

[0002]

[Description of the Prior Art] Conventionally, in the frame vehicle which formed the frame of a car body by the frame, the thing using the frame shown in drawing 3 is proposed (refer to JP,61-186682,U). That is, the frame 31 which forms the frame of a car body is fabricated in the shape of [which has in one the upper wall 32, the low wall 33, and side attachment wall 34 which carry out phase opposite] a cross-section abbreviation KO character. The lane force 35 of the letter of the cross-section abbreviation for L characters is joined to the medial surface of this frame 31 covering said upper wall 32 and side attachment wall 34.

[0003]

[Problem(s) to be Solved by the Invention] Thus, even if it is possible to raise the rigidity of a frame 31 according to the lane force 35 since the lane force 35 was only joined to the medial surface of a frame 31 if it is in the conventional frame structure, the increment in the cross section of the frame 31 by junction of the lane force 35 is very small. Therefore, in the time of a front collision etc., even if the frame 31 and the lane force 35 carried out buckling distortion, it was difficult for the deformation cross section to become few things and to fully absorb the striking energy at the time of a front collision.

[0004] This invention is made in view of such a conventional technical problem, and are efficient and a thing aiming at fully absorbing and offering the anterior part frame structure of the car body aiming at relaxation of the impact to crew about the striking energy at the time of a front collision.

[0005]

[Means for Solving the Problem] If it is in this invention in order to solve said technical problem, the first cross member who extends in the cross direction is combined, the extension frame of the closed section configuration prolonged ahead [car-body] from this first cross member is combined with the front end section of the side frame which extends in a car-body cross direction ranging over a first cross member and a side frame, the ramp of a front riser configuration is formed in the anterior part inferior surface of tongue of this extension frame, and said extension frame is formed in the tapered form.

[0006]

[Function] In said configuration, the backward load from the car-body front to back is inputted into the extension frame ahead prolonged from a first cross member at the time of a front collision. Since an extension frame is a tapering configuration at this time, it is the configuration to which the cross section becomes large gradually toward the front end to the back. Therefore, the deformation cross section increases gradually as a buckling will reach in the direction of a posterior part from the front end, if an extension frame carries out buckling distortion according to said load. Therefore, while the efficient energy-absorbing according to the magnitude of an input load is made by the increment in this deformation cross section, an extension frame is a closed section, and since it has sufficient cross section, it becomes what also has the large

amount of energy-absorbing.

[0007]

[Example] Hereafter, one example of this invention is explained according to drawing. That is, as shown in drawing 1 and 2, the side frame 1 which extends in a cross direction in the both-sides section is formed in the car body. These both side frames 1 extend, before the front end section was located caudad, and have extended in ** while they join cross-section abbreviation KO character-like the side frame outer 2 and the side frame inner 3 and are formed in the closed section configuration.

[0008] As for said side frame outer 2, the side edge section of the first cross member 5 of the closed section configuration which is a long picture-like, has the front end extension section 4 which extends ahead from this side frame inner 3, and extends in this front end extension section 4 at the cross direction is combined from the side frame inner 3. The back end section of the extension frame 6 prolonged ahead [car-body] from this is combined with this first cross member's 5 side edge section. This extension frame 6 is an abbreviation horizontal-like, and has the closed section 9 which both joined cross-section abbreviation KO character-like the extension frame outer 7 and the extension frame inner 8, and was formed.

[0009] on the each polygonal line of said extension frame outer 7 and the extension frame inner 8, the 1st bead 10, the 2nd bead 11, and the 3rd bead 12 are intermittently formed one by one from the front end section side to the back end section side. Moreover, the extension frame outer 7 has the back end extension section 13 which is a long picture-like back and extends to this back from the extension frame inner 8, and this back end extension section 13 is combined with the first cross member 5 and the side frame outer 2.

[0010] The inferior surface of tongue of said extension frame 6 is covered by the front end 14 from said 2nd bead 11, the front riser-like ramp 15 is formed in it, and by this, from the 2nd bead, the extension frame 6 tapers off to the front end 14, and is fabricated by the configuration. Moreover, through the gusset 16 which meets the first cross member's 5 top face at the back end section of said extension frame inner 8, it is combined with the front end section of the side frame inner 3, and, on the other hand, is combined with the rear face of the front bumper 17 which extends through the bumper REIN force 18 in the front end 14 of the extension frame 6 at the cross direction.

[0011] In this example concerning the above configuration, the backward load from the car-body front to back is inputted into the extension frame 6 ahead prolonged from the first cross member 5 at the time of a front collision. At this time, the anterior part from the front end 14 to the 2nd bead 11 is a tapering configuration, and the posterior part of the extension frame 6 is an abbreviation homogeneity cross-section configuration from the 2nd bead 11. Therefore, to the 2nd bead 11, toward the direction of the back end section, the cross-sectional area becomes large and it becomes the maximum cross-sectional area after 2nd bead 11 from the front end 14 in the extension frame 6 concerned gradually.

[0012] Therefore, with the front end 14 to the 1st bead 10, if an extension frame carries out buckling distortion according to said load, it will increase to it gradually and, as for the deformation cross-sectional area, the maximum cross-sectional area will continue the 3rd bead 12 for it from the 2nd bead 11 as a buckling attains to the 2nd bead 11 backward from this 1st bead 10. Therefore, by the increment in this deformation cross-sectional area, the cross-sectional area at the time of buckling distortion increases in order of the 1st bead 10 -> 2nd bead 11 -> 3rd bead 12, the deformation cross-sectional area buckled according to the magnitude of an input load is made to increase by this, and efficient energy-absorbing can be performed.

[0013] And since the closed section 9 is formed until it results [from the front end 14] in the 3rd bead 12, the deformation cross section at the time of buckling is enough, and becomes what also has the large amount of energy-absorbing. Therefore, when the extension frame 6 absorbs collision energy with an efficient and big absorbed amount in the front from the first cross member 5 at the time of a front collision, the amount of energy transfers to the vehicle room back prepared by the first cross member 5 can be decreased. Thereby, in the time of a front collision, the impact to the crew of the vehicle interior of a room can be eased, and crew's safety can be raised.

[0014] Moreover, since said ramp 15 is formed, the angle of incidence which is the angle of the climb way and flat-ground way for starting the transit to a climb way from a flat-ground way to accomplish does not become small at the anterior part of the extension frame 6. Therefore, even if it forms the extension frame 6 ahead [car-body] from the first cross member 5, it becomes securable [a required angle of incidence].

[0015] Furthermore, since the extension frame 6 is a tapered form by forming a ramp 15, in connection with a thing with little area of the front end 14, the front bumper 17 which needs for the front end 14 to cover at worst can be miniaturized.

[0016]

[Effect of the Invention] As explained above, from the first cross member, this invention combined the extension frame of the closed section configuration prolonged ahead [car-body] ranging over the first cross member and the side frame, prepared the ramp of a front riser configuration in the anterior part inferior surface of tongue of this extension frame, and formed it in the tapered form. Therefore, the deformation cross section can be made to increase gradually as a buckling reaches backward, in case a backward load is inputted into an extension frame at the time of a front collision and an extension frame carries out buckling distortion. The deformation cross section buckled according to the magnitude of an input load is made to increase by this, and efficient energy-absorbing can be performed. And since an extension frame is a closed section configuration, its deformation cross section at the time of buckling is enough, and the amount of energy-absorbing will also become large. Therefore, when an extension frame absorbs collision energy with an efficient and big absorbed amount in the front from a first cross member at the time of a front collision, from a first cross member, the amount of energy transfers to the vehicle room prepared back can be decreased, the impact to the crew of the vehicle interior of a room can be eased, and crew's safety can be raised.

[0017] Moreover, even if it prepares an extension frame ahead from a first cross member in this way, while becoming securable [a required angle of incidence] by said ramp, when an extension frame is a tapered form, the front bumper which needs to cover the front end of an extension frame at worst can be miniaturized, and the increment in weight can be avoided.

[Translation done.]